

REMARKS

The present application was filed on November 26, 2003 with claims 1-20, all of which remain pending. Claims 1, 15 and 20 are the independent claims.

Claims 1-20 are objected to based on the presence of “wherein” clauses.

Claims 1, 3, 4, 13, 14 and 16-20 are provisionally rejected on the ground of non-statutory obviousness-type double patenting over claims 1-4, 11, 12, 14, 15, 17 and 20 of co-pending application Serial No. 10/723,160.

Claims 1, 3-9, 11, 12, 15, 17 and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0085560 (hereinafter “Cathey”) in view of U.S. Patent Application Publication No. 2003/0188198 (hereinafter “Holdsworth”).

Claims 2, 10, 13, 14, 16, 18 and 19 are rejected under §103(a) as being unpatentable over Cathey and Holdsworth in view of other references.

In this response, Applicants amend the specification to update related application information, and respectfully traverse the objection, the double patenting rejection, and the §103(a) rejections. Applicants respectfully request reconsideration of the application in view of the remarks to follow.

With regard to the objection of the use of “wherein” clauses in the claims, Applicants respectfully traverse on the ground that the use of such clauses is not *per se* ambiguous, unclear or indefinite as is apparently alleged by the Examiner. Contrary to the assertion of the Examiner, there is no blanket prohibition against the use of such clauses in a patent claim. Claims are considered to be definite, as required by the second paragraph of 35 U.S.C. §112, when they define the metes and bounds of a claimed invention with a reasonable degree of precision and particularity. See In re Venezia, 530 F.2d 956, 958, 189 USPQ 149, 151 (CCPA 1976). In the present application, the scope of the claims which utilize these clauses can be ascertained with a reasonable degree of precision and particularity, and therefore the objection should be withdrawn.

Applicants also traverse the obviousness-type double patenting rejection, on the ground that the claims in question are not obvious variants of one another. By way of example, independent claim 1 of the co-pending application Serial No. 10/723,160, as amended in a recently-filed response to a first Office Action, is as follows:

1. A method of generating a representation of an access control list, the representation being utilizable in a processor, the method comprising the steps of:
determining a plurality of rules of the access control list, each of at least a subset of the rules having a plurality of fields and a corresponding action; and
processing the rules to generate a multi-level tree representation of the access control list, each of one or more of the levels of the tree representation being associated with a corresponding one of the fields;
wherein at least one level of the tree representation comprises a plurality of nodes, with two or more of the nodes of that level having a common subtree, the tree representation including only a single copy of that subtree, the subtree comprising at least one node that is not a leaf node of the tree representation;
the tree representation being characterizable as a directed graph in which each of the two nodes having the common subtree points to the single copy of the common subtree.

The limitations underlined above relate to a tree representation in which two nodes of a given level share a common subtree, with both nodes pointing to a single copy of the common subtree. These limitations are not present in claim 1 of the present application, and are not obvious variants of the recitations in that claim relating to two nodes at a given level each having a separate matching table associated therewith. Accordingly, the claims are believed to be directed to different, patentably distinct inventions.

Applicants also note that the Examiner argues that certain dependent claims of the co-pending application Serial No. 10/723,160 anticipate certain dependent claims of the present application. However, the Examiner fails to appreciate that each of the dependent claims of the co-pending application Serial No. 10/723,160 and the present application expressly incorporates by reference each and every limitation of its corresponding independent claim. Thus, for example, dependent claim 3 of the co-pending application Serial No. 10/723,160 depends from claim 1 of that application, and therefore includes the underlined limitations above relating to common subtrees, while dependent claim 3 of the present application does not include these common subtree limitations, but instead includes different limitations, namely, those relating to two nodes at a given level each having a separate matching table associated therewith. Although there are some limitations in common in these co-pending dependent claims, each of the claims in fact recites different limitations by virtue of its incorporation by reference of limitations from different independent claims.

With regard to the §103(a) rejection over Cathey and Holdsworth, Applicants submit that the Examiner has failed to establish a proper *prima facie* case of obviousness of claims 1, 3-9, 11, 12, 15, 17 and 20 in that the cited references, even if assumed to be combinable, fail to teach or suggest all the claim limitations, and in that no cogent motivation has been identified for combining the references or modifying the reference teachings to reach the claimed invention.

Independent claim 1 is directed to a method of generating a representation of an access control list. The method includes the steps of determining a plurality of rules of the access control list, with each of at least a subset of the rules having a plurality of fields and a corresponding action, and processing the rules to generate a multi-level tree representation of the access control list, with each of one or more of the levels of the tree representation being associated with a corresponding one of the fields. The claim further recites that at least one level of the tree representation other than a root level of the tree representation comprises a plurality of nodes, with at least two of the nodes at that level each having a separate matching table associated therewith.

Thus, in the claimed arrangement, a given non-root level of a tree representation of an access control list comprises two or more nodes that have separate matching tables. An illustrative embodiment of an arrangement of this type can be seen in FIG. 3 of the drawings, where each of a plurality of nodes associated with Level 2 of the tree representation 300 includes a separate matching table, with the separate matching tables being denoted 310-1, 310-2, . . . 310-7. Level 1 of this tree representation is the root level. This approach provides considerable advantages relative to conventional arrangements, such as the per-field LPM approach, which requires the use of a separate matching table for each field of an ACL rule set. See the specification at, for example, page 7, line 12, to page 9, line 24.

The Examiner in formulating the §103(a) rejection argues that each and every limitation of claim 1 is met by the collective teachings of Cathey and Holdsworth. Applicants respectfully disagree. The collective teachings of these references fail to meet at least the above-noted limitations of claim 1 relating to generating a multi-level tree representation of an access control list, with each of one or more of the levels of the tree representation being associated with a corresponding one of the fields, and with at least one level of the tree representation other than a root level of the tree representation comprising a plurality of nodes, with at least two of the nodes at that level each having a separate matching table associated therewith. The Examiner acknowledges with reference to the decision tree shown in FIG. 5B of Cathey that such an arrangement does not teach or

suggest multiple nodes at a given non-root level having separate matching tables as recited. See the Office Action at page 6, first paragraph. This is further apparent from the teachings in paragraph [0064] of Cathey, which indicate that each of the leaves is coupled to the root “via a unique set of linked branches.” Nonetheless, the Examiner argues that the missing teachings are shown in paragraph [0048] of Holdsworth. See the Office Action at page 6, second paragraph. However, Applicants note that the relied-upon portion of Holdsworth does not teach or suggest generation of a multi-level tree representation of an ACL, but to the contrary discloses that each message topic in a tree where each node corresponds to a different topic can have an associated ACL that determines who is able to publish or subscribe on that topic. Thus, Holdsworth does not teach the recited generation of a multi-level tree representation of an ACL, but instead the use of a separate ACL for each node of a tree of message topics. As the Examiner has acknowledged, the decision tree shown in FIG. 5B of Cathey does not teach a multi-level tree representation in which two or more nodes at a given level of the tree each have separate matching tables associated therewith. Accordingly, the collective teachings of Cathey and Holdsworth fail to meet the limitations of claim 1.

The Examiner further argues that it would be obvious to use the ACL of Holdsworth in the programmable packet processor of Cathey. However, as noted above, Holdsworth teaches to associate a separate ACL with each node of a tree of message topics. Such an arrangement appears to be incompatible with the packet processing approach of Cathey, and accordingly one skilled in the art would not be motivated to apply the Holdsworth teachings to Cathey. For example, in applying Holdsworth to Cathey, would one associate a separate ACL with each of the nodes of the decision tree of FIG. 5B? This would appear to unnecessarily complicate the Cathey decision tree arrangement. Moreover, the Cathey reference at paragraph [0064] noted above teaches that each of the leaves of the FIG. 5B decision tree is coupled to the root “via a unique set of linked branches,” which is believed to be a direct teaching away from the recited use of separate matching tables for at least two different nodes at the same non-root level of a tree representation.

It is therefore believed that independent claim 1 is not obvious in view of the proposed combination of cited references.

Independent claims 15 and 20 are believed allowable for reasons similar to those identified above with regard to independent claim 1.

Dependent claims 2-14 and 16-19 are believed allowable for at least the reasons identified above with regard to their respective independent claims. The additional references cited by the

Examiner fail to overcome the fundamental deficiencies of Cathey and Holdsworth as applied to the independent claims.

In view of the above, Applicants believe that claims 1-20 are in condition for allowance, and respectfully request withdrawal of the stated rejections.

Respectfully submitted,

A handwritten signature in black ink, reading "Joseph B. Ryan". The signature is fluid and cursive, with the first name "Joseph" and last name "Ryan" clearly legible.

Date: September 25, 2007

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